

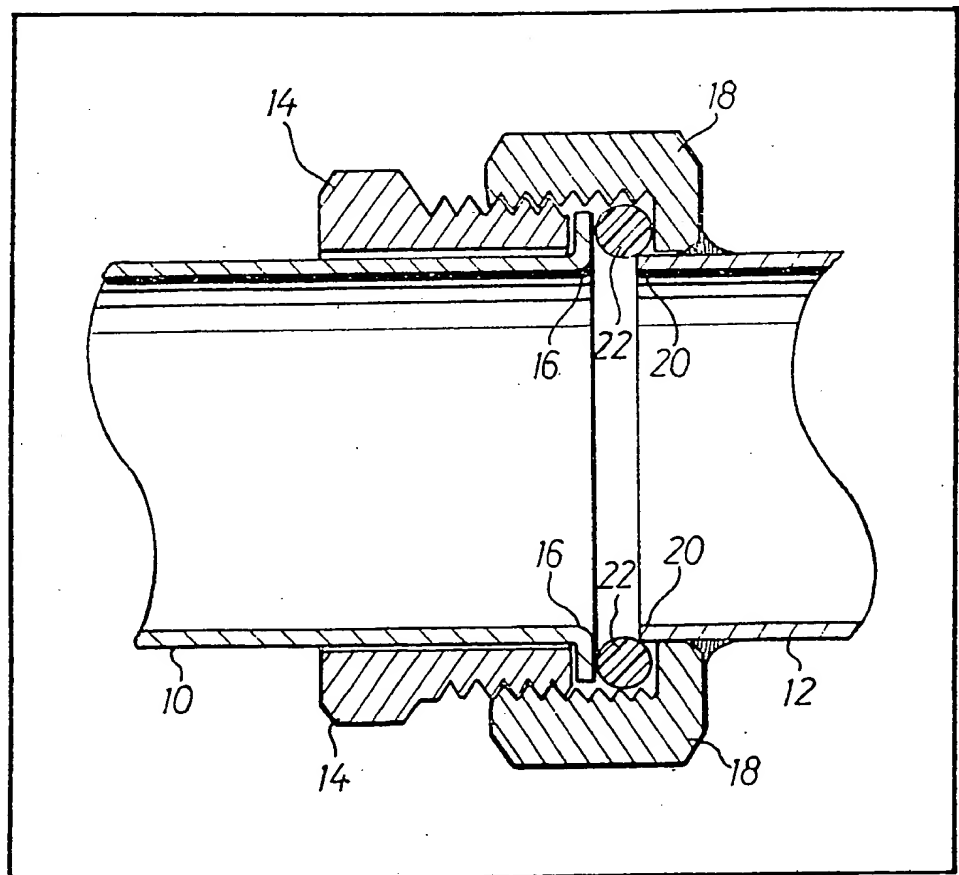
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 (71) Applicant  
 S. W. Hart & Co. Pty. Ltd.,  
 112 Pilbara Street,  
 Welshpool, Western  
 Australia  
 (72) Inventor  
 Harry John Riley  
 (74) Agent  
 W. P. Thompson & Co.,  
 Coopers Building, Church  
 Street, Liverpool L1 3AB

(54) Jointing Metal Pipes

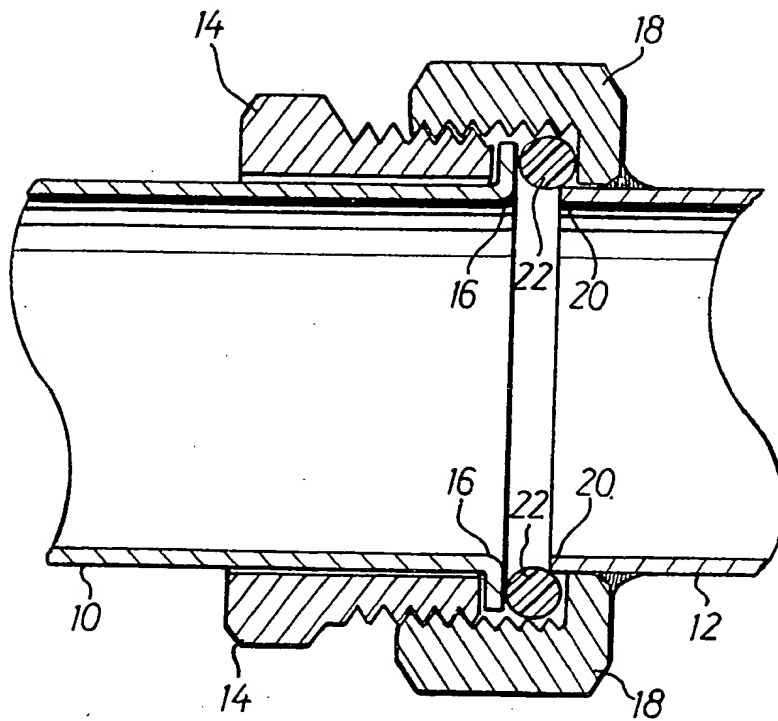
(57) A pipe joint for solar water heater has a female gland nut (18) brazed to a pipe (20) and male union nut (14) which is brazed to a pipe (10). A gasket (22) is clamped between an

out-turned flange on the end of the pipe (10) and the free end (20) of the pipe (12) and keeps the water away from the nuts (14 and 18) which are made of brass and are therefore more prone to corrosion than the pipes themselves which are made of copper.



The drawing originally filed was informal and the print here reproduced is taken from a later filed formal copy.

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## SPECIFICATION

### Jointing Metal Pipes

The present invention relates to the jointing of metal, particularly copper, pipes.

Metal pipes are used in applications involving transport of water from one location to another. Where it is necessary to join one length of pipe to another it is common practice to use brass nuts. Typically, a brass union nut with an internal female thread is brazed to an end of one length of pipe. A brass gland nut with an external male thread matching the female thread is brazed to an end of another length of pipe. Brass in a water line can be subject to corrosion if it is in contact with the water over an extended period. In a fast flowing line this does not lead to undue problems since the water flow washes away any accumulation of corroded material. However, where the water flow is slow such as in thermosyphon type solar water heater headers, the corroded material tends to build up and eventually to obstruct the water line. Thus, the present invention provides a metal pipe joint for a waterline in which brass fittings have little or no contact with water flowing through the line.

In accordance with the present invention there is provided a metal pipe joint for a water line comprising a first length of metal pipe having a brass male gland nut attached thereto adjacent an end thereof. A second length of metal pipe having a brass female union nut attached thereto adjacent an end thereof, the male gland nut and female union nut having matching external and internal threads respectively, characterised in that the first length of metal pipe comprises a free end portion which is turned outwardly to form a flange in engagement with an adjacent portion of the male gland nut, the second length of metal pipe comprises a free end portion which together with the female union nut defines an annular cavity in which is located an O-ring gasket, whereby, in use, the male and female nuts are threadedly engaged so as to draw the lengths of metal pipe together and the O ring gasket is compressed between the outwardly turned flange and the annular cavity.

The metal pipe joint of the present invention has been found to be effective allowing easy connection and disconnection at low cost.

The present invention will now be described, by way of example, with reference to the accompanying drawing which is a schematic sectional view of a copper pipe joint of the present invention. In the drawing, there is shown a copper pipe joint for a water line of a solar water heater header comprising a first length of copper pipe 10 and a second length of copper pipe 12. The first length of copper pipe 10 has a brass male gland nut 14 attached thereto adjacent an end thereof, typically, the gland nut 14 is brazed

to the copper pipe 10. The copper pipe 10 comprises a free end portion which is turned outwardly through 90° in known manner to form a flange 16 about 3 mm deep in engagement with an adjacent portion of the gland nut 14. The second length of copper pipe 12 has a brass female union nut 18 attached thereto adjacent an end thereof. Typically, the union nut 18 is brazed to the copper pipe 12. The copper pipe 12 comprises a free end portion 20 about 2 mm long which together with the union nut 18 forms an annular cavity. An O ring gasket 22 is placed in the annular cavity. The threads on the gland nut 14 and union nut 18 are matching. In use, the nuts 14 and 18 are threadedly engaged so as to draw the lengths of copper pipe 10 and 12 together. The free end portion 20 of the copper pipe 12 contacts the base of the flange 16. This causes the O ring gasket 22 to be compressed between the flange 16 and the walls of the cavity defined by the free end portion 20 and the union nut 18. Thus, the O ring gasket forms a seal which prevents water from coming into contact with the brass nuts 14 and 18. Only the copper of the pipes 10 and 12 is contacted by the water. Since copper is more corrosion resistant than brass there is a reduced tendency for corroded material to accumulate in the water line. Modifications and variations such as would be apparent to a skilled addressee are deemed within the scope of the present invention.

### Claims

1. A metal pipe joint for a water line comprising a first length of metal pipe having a brass male gland nut attached thereto adjacent an end thereof, a second length of metal pipe having a brass female union nut attached thereto adjacent an end thereof, the male gland nut and female union nut having matching external and internal threads respectively, characterised in that the first length of metal pipe comprises a free end portion which is turned outwardly to form a flange in engagement with an adjacent portion of the male gland nut, the second length of metal pipe comprises a free end portion which together with the female union nut defines an annular cavity in which is located an O ring gasket, whereby, in use, the male and female nuts are threadedly engaged so as to draw the lengths of metal pipe together and the O ring gasket is compressed between the outwardly turned flange and the annular cavity.

2. A metal pipe joint as claimed in claim 1, characterised in that the lengths of metal pipe are formed of copper.

3. A solar water heater comprising one or more metal pipe joints as claimed in claim 1 or claim 2.

4. A metal pipe joint substantially as herein described with reference to and as illustrated in the accompanying drawing.

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